

2011 Military Health System Conference

Infections Complicating the Care of Combat Casualties during Operations Iraqi Freedom and Enduring Freedom

The Quadruple Aim: Working Together, Achieving Success

Clinton K. Murray, LTC, MC, USA

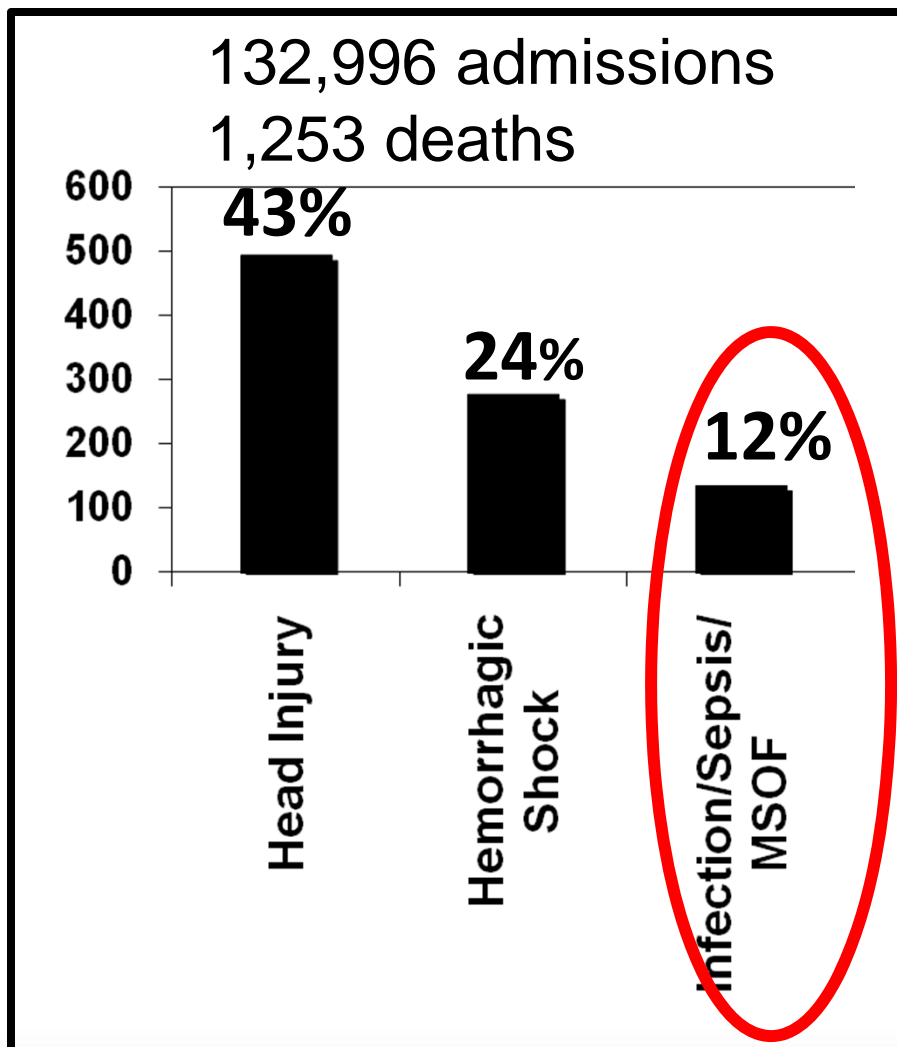
27 January 2011



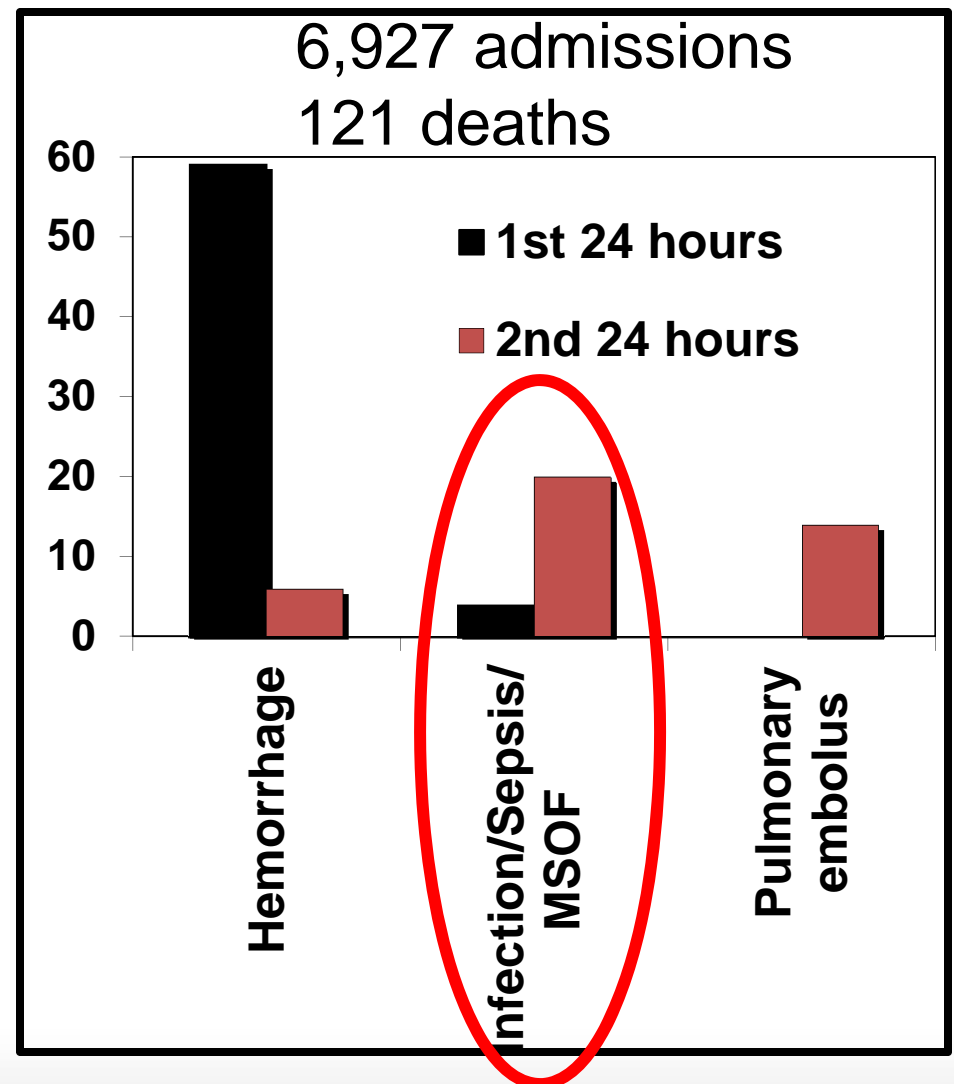
Brooke Army Medical Center
Uniformed Services University of the Health
Sciences
Infectious Diseases Clinical Research Program
US Army Institute of Surgical Research
Data Coordinating and Analysis Center, US
Military HIV Research Program

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 27 JAN 2011		2. REPORT TYPE		3. DATES COVERED 00-00-2011 to 00-00-2011	
4. TITLE AND SUBTITLE Infections Complicating the Care of Combat Casualties during Operations Iraqi Freedom and Enduring Freedom				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Uniformed Services University of the Health Sciences, Bethesda, MD, 20814				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES presented at the 2011 Military Health System Conference, January 24-27, National Harbor, Maryland					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 10	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Vietnam Combat Hospitals- Mortality



Arnold. Military Medicine. 1978



Feltis. American Journal of Surgery. 1970

Infectious Complications



Injured
8 April 2006

2011 MHS Conference

- Infections due to
 - *Acinetobacter*
 - *Pseudomonas*
 - *Klebsiella*
 - *Staphylococcus aureus*
- Complications
 - Kidney
 - Bone marrow



Retired
27 March 2010

Pictures with permission

Objective



- Assess infectious complications and their risk factors among combat casualties to mitigate excess morbidity and mortality



75% body surface area
burn patient
Ar Ramadi, Iraq

Methodology



- Joint Theater Trauma Registry (JTTR)
 - Deployment-related injuries with completed records between 19 March 2003-13 April 2009
 - ICD-9 codes for infections defined by
 - Anatomical/clinical syndromes
 - Infecting pathogens
 - Risk factors included
 - Mechanisms of injury
 - Injury severity
 - Transfusion



Results



- 16,742 patients
 - 15,021 from Iraq (90%)
 - 10,973 battle injuries (67%)- 36% explosions
 - 97% male, 78% enlisted, 78% Army
- Infections
 - 921 (6%) had one or more infections
 - Anatomical/clinical syndromes- skin/wounds
 - Infecting pathogens- gram negative bacteria
 - Higher rates- explosions, injury severity and site, but not transfusions

Conclusions



- Casualties from Iraq and Afghanistan face substantial risk of infectious complications
- Improved diagnostic platforms and treatment modalities are needed from near the point of injury through long-term rehabilitative care
- Focus on standardized treatment guidelines and infection control and prevention strategies

Limitations



Issues

- ICD-9 code diagnosis
- Retrospective chart review
- Inadequate infectious disease specific granularity
- Inadequate long-term follow up
- Poor correlation of infection with bacterial isolates over time and facilities

Solutions

- JTTR ID module
- Trauma ID Outcome Study (TIDOS)
- Multidrug-resistant Organism Repository and Surveillance Network (MRSN)

2011 Military Health System Conference

Infections Complicating the Care of Combat Casualties during Operations Iraqi Freedom and Enduring Freedom

The Quadruple Aim: Working Together, Achieving Success

Edmund C. Tramont, MD, MACP

27 January 2011



Combat Related Infections



- Recognized since the earliest recording of battlefield morbidities
- A dynamic and ever evolving threat
 - Establishment of improved body armor, well equipped ICUs, relatively rapid evacuation of wounded
 - Continued evolution of microbial resistance
 - NDM (New Delhi metallo-beta-lactamase)
- The uniqueness of the military medical care system and the requirement for US Military to advance the understanding of the ever changing dynamics of combat associated infections and lead the progress in improved care and treatment of combat related infections requires a longstanding commitment to a comprehensive focused research mission
 - Joint Theater Trauma System (JTTS) and Joint Theater Trauma Registry (JTTR)